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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/620,668	07/16/2003	Sandeep Lodha	RSTN-119	9563
30139	7590	03/13/2007	EXAMINER	
WILSON & HAM			SU, BENJAMIN	
2530 BERRYESSA ROAD			ART UNIT	
PMB: 348			PAPER NUMBER	
SAN JOSE, CA 95132			2616	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		03/13/2007	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

# Office Action Summary

Application No.

10/620,668

Applicant(s)

LODHA, SANDEEP

Examiner

Benjamin Su

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 16 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 11, 12 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim 11 does not depend on a previous claim.

Claim 12 does not depend on a previous claim.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 12, 13, 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

For claim 12, line 1, the term "said scheduler" has no antecedent basis.

For claim 12, line 2, the term "the first round" has no antecedent basis.

For claim 13, line 2, the term "the second round" has no antecedent basis.

For claim 20, line 2, the recitation "such that" makes the claim indefinite, it is not known the metes and bounds of the claim.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 1 – 7, 15 – 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Bly et al. (US 2004/0042399).

Bly et al. disclosed, claim 1, a method for forwarding packet-based traffic through a network node comprising:

dedicating a group of queues in a network node to a customer (see paragraph 24, lines 7 – 8, 11 – 15);

performing queue-specific rate shaping on the customer's traffic according to queue-specific bandwidth limitations respectively associated with the queues (see paragraph 25, lines 1 – 3, Figure 6, Box 50 Bandwidth Allocation Table, wherein queue

—specific credit allocation request limitation corresponds to queue-specific bandwidth limitations) and

performing group-specific rate shaping on the customer's traffic according to a group-specific bandwidth limitation associated with the group of queues (see paragraph 30, lines 1 – 13);

regarding claim 2, associating queues from the group of queues with different types of traffic that are to be received from the customer (see paragraph 24, lines 1- 4);

regarding claim 3, receiving a traffic type bandwidth limitation from the customer (see paragraph 25, line 1); and translating the traffic type bandwidth limitation to a queue-specific bandwidth limitation of the respective queue-specific bandwidth limitations (see paragraph 24, lines 1 – 3, paragraph 25, line 1, paragraph 29, lines 10 - 12);

regarding claim 4, associating the group of queues with a group rate shaper that performs the group-specific rate shaping on the customer's traffic on an aggregate basis (see paragraph 21, line 11 – 13, wherein the burst group manager corresponds to a group rate shaper, paragraph 30, lines 1 – 13);

regarding claim 5, prioritizing the queues of the group of queues (see paragraph 38, lines 9 – 13, paragraph 39, lines 1- 6);

regarding claim 6, distributing the portion of excess unused bandwidth among the group of queues on a priority basis according to the prioritizing (see paragraph 39, lines 6 – 14);

regarding claim 7, scheduling packets for forwarding from one or more of the queues in the group of queues (see paragraph 27, lines 5 – 8), wherein bandwidth consumed by the packets from each of the queues is equal to respective queue-specific bandwidth limitations for the queues (see paragraph 30, lines 5 – 8); identifying excess unused bandwidth when the consumed bandwidth is less than the group-specific bandwidth limitation (see paragraph 39, lines 6 – 10, wherein listing a queue with maximum request value at the end of the Bandwidth Allocation Table corresponds to identifying excess unused bandwidth); and distributing a portion of the excess unused bandwidth to a first queue of the group of queues (see paragraph 39, lines 6 – 12), wherein the sum of the consumed bandwidth and the portion of the excess unused bandwidth is equal to a group-specific bandwidth limitation for the group (see paragraph 39, lines 10 – 13, wherein line 11, the phrase “allow queue 44 to have whatever is left over” implies the sum of the consumed bandwidth and the portion of the excess unused bandwidth is equal to a group-specific bandwidth limitation for the group);

Bly et al. disclosed, regarding claim 15, a method for packet-based traffic forwarding, comprising:

dedicating multiple traffic channels to a customer (see paragraph 24, lines 7 – 8, 11 – 15);

performing traffic-type-specific rate shaping according to traffic-type-specific

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bandwidth limitations respectively associated with the traffic channels (see paragraph 24, lines 1 – 4, paragraph 25, lines 1 – 3, Figure 6, Box 50 Bandwidth Allocation Table, wherein queue –specific credit allocation request limitation corresponds to traffic-type-specific bandwidth limitations; and

performing customer-specific rate shaping according to a customer-specific bandwidth limitation associated with the traffic channels (see paragraph 30, lines 1 – 13);

regarding claim 16, prioritizing the traffic channels relative to one another (see paragraph 38, lines 9 – 13, paragraph 39, lines 1- 6);

regarding claim 17, the performing traffic-type-specific rate shaping consumes less bandwidth than the customer-specific bandwidth limitation (see paragraph 30, lines 1 – 13), the method further comprising:

identifying excess unused bandwidth following the traffic-type-specific rate shaping; and distributing the excess unused bandwidth to a subset of the traffic channels in priority order according to the prioritizing (see paragraph 39, lines 6 – 14);

regarding claim 18, associating a traffic type with each traffic channel (see paragraph 24, lines 1 – 4);

regarding claim 19, adjusting the traffic-type-specific rate shaping according to traffic type-specific rate shaping customer preferences (see paragraph 25, lines 1 – 3, paragraph 29, lines 10 – 13);

***Claim Rejections - 35 USC § 103***

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 8 – 13, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bly et al. in view of Aatresh (US 6067301).

Bly et al. disclosed, regarding claim 8, a network node for forwarding packet-based traffic, comprising: a plurality of queues (see Figure 4, Box 44, 45, 46, 47, paragraph 24, line 2);

a plurality of group-specific rate shapers configured to be associated with groups of the plurality of queues (see paragraph 16, lines 20 – 21, paragraph 21, line 11 – 13, wherein the burst group manager corresponds to a group rate shaper, paragraph 30, lines 1 - 13); and



a group establishment module configured to dedicate a group of the queues to a customer and to associate one of the group-specific rate shapers with the group of queues that is dedicated to the customer (see paragraph 21, lines 11 – 14, wherein the burst group allocation mechanism corresponds to a group establishment module, paragraph 24, lines 9 – 15);

regarding claim 14, a plurality of pipes (see Figure 1, Box 12 BURST GROUP 0, 14 BURST GROUP 1, 16 BURST GROUP M, wherein each BURST GROUP corresponds to one of a plurality of pipes) wherein each pipe is associated with a group-specific rate shaper (see paragraph 21, lines 11 – 13, wherein the burst group manager corresponds to a group-specific rate shaper), and wherein each pipe of the plurality of pipes includes:

multiple traffic channels comprising one or more queues of the plurality of queues (see paragraph 24, lines 9 – 11);

Bly et al. fail to teach a plurality of queue-specific rate shapers respectively associated with the plurality of queues as recited in claim 8;

a scheduler, coupled to the plurality of queue-specific rate shapers and the plurality of group-specific rate shapers, configured to schedule packets enqueued in the plurality of queues according to the respective plurality of queue-specific rate shapers, wherein the queue-specific rate shaper respectively associated with each queue is associated with a priority, and wherein the scheduler schedules according to the associated priority as recited in claim 9;

wherein the scheduler is further configured to:

scheduling packets for forwarding from a first one or more queues of the plurality of queues, wherein bandwidth consumed by the packets from each of the first one or more queues is less than or equal to respective queue-specific bandwidth limitations for the first one or more queues; identifying excess unused bandwidth when the consumed bandwidth is less than a group-specific bandwidth limitation, wherein a sum of the consumed bandwidth and the excess unused bandwidth approximately equals the group-specific bandwidth limitation; and scheduling packets for forwarding from a second one or more queues of the plurality of queues using the excess unused bandwidth as recited in claim 10;

a scheduler configured to:

schedule, in a first round, packets enqueued in the plurality of queues according to the respective plurality of queue-specific rate shapers; and schedule, in a second round, packets enqueued in the plurality of queues according to the respective group-specific rate shapers as recited in claim 11;

the scheduler is further configured to:

schedule, in subrounds of the first round, packets enqueued in the plurality of queues according to a priority respectively associated with each of the queues as recited in claim 12;

the scheduler is further configured to:

schedule, in subrounds of the second round, packets enqueued in the plurality of queues according to a priority respectively associated with each of the queues as recited in claim 13.

Aatresh from the same or similar field of endeavors teach a plurality of queue-specific rate shapers respectively associated with the plurality of queues (see column 9, lines 62 – 66, wherein registers 200, 202, 204, 206, 208 correspond to queue-specific rate shapers) as recited in claim 8;

a scheduler (see column 5, lines 62 – 63, wherein the I/O controller corresponds to a scheduler), coupled to the plurality of queue-specific rate shapers and the plurality of group-specific rate shapers (see column 6, lines 23 – 26), configured to schedule packets enqueued in the plurality of queues according to the respective plurality of queue-specific rate shapers (see column 7, lines 30 – 38), wherein the queue-specific rate shaper respectively associated with each queue is associated with a priority (see column 6, lines 51 – 58), and wherein the scheduler schedules according to the associated priority (see column 7, lines 44 – 47) as recited in claim 9;

wherein the scheduler is further configured to:

scheduling packets for forwarding from a first one or more queues of the plurality of queues, wherein bandwidth consumed by the packets from each of the first one or more queues is less than or equal to respective queue-specific bandwidth limitations for the first one or more queues (see column 8, lines 1 – 6); identifying excess unused bandwidth when the consumed bandwidth is less than a group-specific bandwidth limitation (see column 8, lines 6 – 11), wherein a sum of the consumed bandwidth and the excess unused bandwidth approximately equals the group-specific bandwidth limitation (column 7, lines 33 – 38, wherein the total link bandwidth corresponds to the group-specific bandwidth limitation, column 8 lines 3 – 20, it implies

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the sum of the total bandwidth consumed is 10% (control queue) + 30% (high priority queue) + 45% (low priority queue) + 15% (excess bandwidth consumed) = 100%, which is equal to the group-specific bandwidth limitation); and scheduling packets for forwarding from a second one or more queues of the plurality of queues using the excess unused bandwidth (see column 8, lines 11 – 15) as recited in claim 10;

a scheduler configured to:

schedule, in a first round, packets enqueued in the plurality of queues according to the respective plurality of queue-specific rate shapers (see column 7, lines 61 – 67); and schedule, in a second round, packets enqueued in the plurality of queues according to the respective group-specific rate shapers (see column 8, lines 11 – 15, it implies the control queue consuming all of the excess bandwidth (the excess bandwidth is 15% of the , when the control queue is normally shaped by the queue shaper to consume 10% of the total bandwidth) is in accord with the group-specific rate shapers) as recited in claim 11;

the scheduler is further configured to:

schedule, in subrounds of the first round, packets enqueued in the plurality of queues according to a priority respectively associated with each of the queues (see column 8, lines 8 – 11) as recited in claim 12;

the scheduler is further configured to:

schedule, in subrounds of the second round, packets enqueued in the plurality of queues according to a priority respectively associated with each of the queues (see column 8, lines 8 – 11, 13 - 20) as recited in claim 13.

Thus, it would have been obvious to a person of ordinary skill in the art at the time of the invention to use a plurality of queue-specific rate shapers respectively associated with the plurality of queues as recited in claim 8 in order to allow flexible rate adjustment (see Aatresh, column 7, lines 39 – 41).

Thus, it would have been obvious to a person of ordinary skill in the art at the time of the invention to use a scheduler, coupled to the plurality of queue-specific rate shapers and the plurality of group-specific rate shapers, configured to schedule packets enqueued in the plurality of queues according to the respective plurality of queue-specific rate shapers, wherein the queue-specific rate shaper respectively associated with each queue is associated with a priority, and wherein the scheduler schedules according to the associated priority as recited in claim 9;

wherein the scheduler is further configured to:

scheduling packets for forwarding from a first one or more queues of the plurality of queues, wherein bandwidth consumed by the packets from each of the first one or more queues is less than or equal to respective queue-specific bandwidth limitations for the first one or more queues; identifying excess unused bandwidth when the consumed bandwidth is less than a group-specific bandwidth limitation, wherein a sum of the consumed bandwidth and the excess unused bandwidth approximately equals the group-specific bandwidth limitation; and scheduling packets for forwarding from a second one or more queues of the plurality of queues using the excess unused bandwidth as recited in claim 10;

a scheduler configured to:

schedule, in a first round, packets enqueued in the plurality of queues according to the respective plurality of queue-specific rate shapers; and schedule, in a second round, packets enqueued in the plurality of queues according to the respective group-specific rate shapers as recited in claim 11;

the scheduler is further configured to:

schedule, in subrounds of the first round, packets enqueued in the plurality of queues according to a priority respectively associated with each of the queues as recited in claim 12;

the scheduler is further configured to:

schedule, in subrounds of the second round, packets enqueued in the plurality of queues according to a priority respectively associated with each of the queues as recited in claim 13 in the network node taught by Bly et al. in order to more efficiently utilize the available bandwidth (see Aatresh, column 7, lines 26 – 28).

Bly et al. disclosed, regarding claim 20, all the subject matter of the claimed invention as recited in paragraph 5 of this office action.

Bly et al. fail to teach associating respective traffic-type-specific bandwidth limitations with each traffic channel such that a sum of the respective traffic-type-specific bandwidth limitations is less than or equal to the customer-specific bandwidth limitation as recited in claim 20.

Aatresh from the same or similar field of endeavors teach associating respective traffic-type-specific bandwidth limitations with each traffic channel such that a sum of

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the respective traffic-type-specific bandwidth limitations is equal to the customer-specific bandwidth limitation (see column 7, lines 33 – 38, wherein the total data link bandwidth corresponds to the customer-specific bandwidth limitation) as recited in claim 20.

Thus, it would have been obvious to a person of ordinary skill in the art at the time of the invention to use associating respective traffic-type-specific bandwidth limitations with each traffic channel such that a sum of the respective traffic-type-specific bandwidth limitations is less than or equal to the customer-specific bandwidth limitation as recited in claim 20 in the method taught by Bly et al. in order to fully utilizes the available bandwidth.

### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Chiussi et al. (US 6532213) and Parruck et al. (US 7002916) are cited to show methods which are considered pertinent to the claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Benjamin Su whose telephone number is 571-270-1423. The examiner can normally be reached on Monday - Friday 10 - 3 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Yao can be reached on 571-272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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BZS

A handwritten signature in cursive script that reads "Benjamin Su".

KWANG BIN YAO  
PRIMARY EXAMINER

A handwritten signature in cursive script, likely belonging to Kwang Bin Yao, with a stylized, flowing design.